UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TEXAS
TYLER DIVISION

ERICSSON INC., et al.,	)	Case No. 6:10-CV-473-LED
	)	
Plaintiffs,	)	JURY TRIAL DEMANDED
	)	
v.	)	
	)	
D-LINK SYSTEMS, INC., et al.,	)	
	)	
Defendants.	)	
	)	
_____	)	

DEFENDANTS' RESPONSIVE CLAIM CONSTRUCTION BRIEF

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Page

Cases

Statutes

I. INTRODUCTION

Contrary to Ericsson's assertions, the patents-in-suit do not reflect "pioneering" inventions and were not developed in connection with the accused 802.11 standards. Rather, the patents, filed after decades of developments in the relevant telecommunications fields, at best represent incremental improvements to mature data-transmission technologies. The nature and point of the alleged contributions over the prior art are recited at length and in detail throughout the patents' specifications. Consistent with the patents' disclosures, Defendants call for claim constructions that are in harmony with the claim language and the remainder of the patents' intrinsic records. Ericsson's claim construction brief, though rich in attorney argument, virtually ignores the patents' intrinsic record. Ericsson should not be permitted to artificially inflate the patents by stripping from their claims the very inventions that the patents purport to advance.[1]

II. PRINCIPLES OF CLAIM CONSTRUCTION

Although the claim language defines the legal scope of the patent, the primary source of evidence for claim construction is the *entire* body of intrinsic evidence, *i.e.*, "the patent itself, including the claims, the specification and, if in evidence, the prosecution history." *Vitronics Corp. v. Conceptronic, Inc.,* 90 F.3d 1576, 1582 (Fed. Cir. 1996). The Federal Circuit confirmed the primacy of intrinsic evidence in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (*en banc*). And while the decision reiterates that words used in a claim are generally given their ordinary and customary meaning, "the 'ordinary meaning' of a claim term is its meaning to the ordinary artisan *after reading the entire patent.*" *See id.* at 1321.[2] Moreover, where, as here, the

---

[1] For ease of reference, Exhibit A is a chart setting forth the parties' constructions for the terms at issue.

[2] Emphasis added throughout except as otherwise indicated.

parties agree that claim language requires construction, the patent's specification remains the "single best guide to the meaning of a disputed term," and "usually it is dispositive" on claim construction. *Id.* at 1314-17.

Ericsson purports to acknowledge *Phillips*, but then mischaracterizes it and invites this Court to adopt the exact paradigm for claim construction that *Phillips* rejected. Contrary to Ericsson's assertions, consultation of the specification is ***not*** restricted to only "two unusual circumstances" (*i.e.*, when there is an express definition or an express disclaimer or disavowal of claim scope). *See* Pl. Br. at 2-3. *Phillips* specifically rejects "assigning such a limited role to the specification." 415 F.3d at 1321-22; *see also Nystrom v. Trex Co., Inc.*, 424 F.3d 1136, 1145 (Fed. Cir. 2005) (Per *Phillips*, there need not be a disavowal in the specification in order to limit the claim language). Ericsson's claim constructions simply do not comport with contemporary and binding claim construction principles. *See Agere Sys., Inc. v. Sony Corp.*, No. 2:06-CV-079, 2008 WL 2078308 at *5 (E.D. Tex. May 15, 2008).[3]

III. OVERVIEW OF THE '435 PATENT

The '435 patent provides a solution to problems that occur when using a prior art data transmission technique referred to as "Automatic Repeat Request" (ARQ). Exh. B ('435 patent) at 1:4-36. According to the "Background of the Invention," wireless data transmissions are prone to errors that can result in the loss of data packets sent between a transmitter and a receiver. *Id.* at 1:10-12. "ARQ" refers to a prior art technique to ensure that data packets are successfully transmitted by acknowledging their receipt. *See, e.g., id.* at 1:12-24. In particular,

[3] Ericsson cites *E-Pass Techs., Inc. v. 3COM Corp.,* 343 F.3d 1364 (Fed. Cir. 2003) for its incorrect assertion that a patent specification is consulted only in two unusual circumstances. *E-Pass*, however, was decided before *Phillips*, and the court in *E-Pass* applied the outmoded approach to claim construction that *Phillips* rejected. *See id.* at 1369 (applying the pre-*Phillips* approach to claim construction).

when an ARQ receiver successfully receives a data packet, it will send an acknowledgement informing the transmitter of this successful receipt. *See, e.g., id.* But if a data packet is not successfully received, either no such acknowledgement will be sent, or a negative acknowledgment will be sent. *See id.* at 1:12-24. As such, prior art ARQ techniques allow the transmitter to determine which packets have been successfully received ("acknowledged"), and which packets require retransmission because they have not been successfully received. *See id.* In the '435 patent, these latter packets are referred to as "unacknowledged" data packets. *Id.* at 1:4-24. In such a system, when a packet is unacknowledged, the transmitter attempts to retransmit it until transmission is acknowledged. *See id.* at 1:14-24.

As explained in the '435 patent, time sensitive data (such as video or voice) quickly becomes obsolete or superfluous if it cannot be transmitted successfully in a short period of time. *See, e.g., id.* at 1:14-34. Prior art ARQ techniques addressed this issue by allowing a transmitter to discard unacknowledged data packets after attempting to retransmit them a number of times or after a period of time expired:

> For some messages, after the transmitter has attempted a number of times to retransmit a particular message without success, or after a period of time expires, the message should be discarded from the transmitter's ARQ buffer.

Id. at 1:30-33. Problems arise, however, when a transmitter discards unacknowledged data packets and the receiver does not know of this discarding. For example, where the receiver only receives some of the packets in a set, it may wait for the discarded data packets within that set that it has not received before allowing the received packets to be processed. In such circumstances, the system may go into deadlock:

> However, if the receiver continues to expect discarded messages, the system can go into ***deadlock***.

Id. at 1:33-35. The invention of the '435 patent purports to overcome the deadlock problem by providing a "discard notification message." According to the "Summary of the Invention," the transmitter uses the claimed discard notification message to inform the receiver which packets the transmitter has discarded, and which the receiver should thus no longer expect to receive:

> In accordance with various embodiments of the algorithm, a cell discard notification (CDN) message is sent by the transmitter to the receiver to indicate to the receiver which cells or packets the transmitter has discarded, and which the receiver need no longer expect to receive.

Id. at 1:46-50. Obsolete or otherwise superfluous packets can thus safely be discarded and prevented from clogging ARQ buffers and causing system deadlocking:

> In accordance with various embodiments of the invention, an algorithm complementary to the Selective Repeat ARQ technique is provided, that ***allows obsolete or otherwise superfluous packets to be safely discarded at the transmitter*** when using the Selective Repeat ARQ technique. ***Thus, clogging of ARQ buffers and deadlocking of the system can be avoided***, and data transfer in mobile wireless environments using Selective Repeat ARQ can be made more efficient.

Id. at 1:38-46.

IV. CONSTRUCTION OF THE DISPUTED TERMS IN THE '435 PATENT

Term	Ericsson's Construction	Defendants' Construction
data packet discard notification message from the transmitter to the receiver indicating data packets the transmitter has discarded	a control message in an Automatic Repeat Request protocol that indicates data packets that the transmitter has discarded	message containing the identity of unacknowledged data packets the transmitter has discarded

The '435 specification defines the "discarded" packets indicated in the data packet discard notification as the "***unacknowledged***" data packets that the transmitter has discarded. Defendants' proposed construction clarifies this point. Ericsson does not dispute that the discarded packets are the unacknowledged ones, but nevertheless incorrectly omits this critical term from its proposed construction. With respect to the remaining differences in the parties'

proposals, as discussed below, the parties appear to agree in concept, although Defendants believe that their proposals will be more helpful to the jury.

A. Defendants' Proposed Construction Is Supported By The Intrinsic Record

1. The Purpose Of The Discard Notification Is To Inform The Receiver What "Unacknowledged" Packets The Transmitter Has Discarded

The claims require that the discard notification message indicate "data packets … discarded" by the transmitter, which the applicants defined in the specification as the "unacknowledged" data packets. *See* Exh. B ('435 patent) at claim 1. The "Background of the Invention" expressly confirms that the messages that should be discarded are those that have been retransmitted without success—*i.e.,* the unacknowledged messages:

> For some messages, after the transmitter has attempted a number of times to retransmit a particular message without success, or after a period of time expires, ***the message should be discarded from the transmitter's ARQ buffer***.

Id. at 1:31-34. Likewise, the "Summary of the Invention" confirms that the discarded messages indicated by the discard notification are those that the receiver ***need no longer expect to receive***—*i.e.*, those that it had not previously received and acknowledged:

> In accordance with various embodiments of the algorithm, a cell discard notification (CDN) message is sent by the transmitter to the receiver to indicate to the receiver ***which cells or packets the transmitter has discarded, and which the receiver need no longer expect to receive***.

Id. at 1:46-50. These "expected" packets are, ***by definition***, unacknowledged because the receiver would not expect packets that it has already received and acknowledged. By informing the receiver which unacknowledged packets have been discarded, the claimed discard notification allows the receiver to alter its expectations of which packets to receive, thereby giving rise to its particular solution to the deadlock problem. *Id.* at 1:31-35 ("if the receiver ***continues to expect discarded messages***, the system can go into deadlock."); 2:22-25 ("the transmitter sends a cell discard notification message (CDN message) to the receiver ***so that the***

receiver will not continue to expect to receive the discarded messages."); 2:26-34 (upon reception of CDN, receiver "alters its expectations of which cells to receive").

This focus on unacknowledged messages is repeated throughout the specification, beginning with its very first sentence regarding the "present invention":

> **The present invention relates** generally to information transfer in mobile wireless environments, and **in particular to management of *unacknowledged* data frames** in Selective Repeat ARQ.

Id. at 1:4-7; *see also id.* at 1:14-22 (identifying problems that arise when messages "***remain unacknowledged by the receiver*** . . . until they can be successfully transmitted from the transmitter to the receiver or until a period of time expires."); claim 1 ("***expects to receive***"); Exh. C ('435 patent PH, 5/17/01 Resp. to OA) at 11.

Much like they should not be read in a vacuum, claims should not be read with logic suspended. Ericsson agrees that the stated purpose of the '435 invention is to avoid deadlocking caused by the receiver waiting on unacknowledged messages that the transmitter has discarded. Pl. Br. at 9 ("the receiver continues to wait on these packets and the transmitter continues to store them in the buffer ***because the receiver has not yet acknowledged receipt of them***."). An acknowledged message will not cause deadlock because—as logic would dictate—receivers do not wait for what they already have. Indeed, as Ericsson itself explains, "[a]fter a few retries, if the receiver still has not correctly received one or more data packets, they become obsolete….the discard notification message tells the receiver that the transmitter has deleted obsolete data packets." *Id.* That this is the heart of the invention is beyond reasonable dispute.

2. The Discard Message Contains The Identity Of Packets Discarded By The Transmitter

The asserted claims require the transmission of a discard notification message "indicating" the discarded packets. Defendants' proposed construction—"containing the identity

of"—attempts to provide meaning to the "indicating" term consistent with its ordinary meaning and usage in the '435 patent. Throughout the patent, "indicating" and "identifying" are both used to refer to the contents of the claimed discard notification. *See* Exh. B ('435 patent) at 2:48-53, 3:8-15, 3:17-20, 3:23-30. By contrast, though Ericsson contends that "indicating" needs no construction, it fails to explain what "indicating" means in the context of the claims. In fact, Ericsson invites ambiguity and confusion by asserting that "indicating" should be given a "flexible" definition. Pl. Br. at 10-11.

Ericsson's opposition to Defendants' position on this term focuses almost entirely on knocking down a straw man argument, *i.e.*, that "indicating" requires an "explicit identification of each packet to be discarded." *Id.* at 10. But Defendants' construction includes no such requirement—to the contrary, it simply requires that the notification message convey information about the identity of the discarded packets. Likewise, Defendants' proposal neither requires that individual sequence numbers be contained in the message, nor excludes any embodiments. *Id*. at 11-12. Rather, every embodiment of the claimed discard notification identifies the packets that have been discarded, whether in form of a list of individual discarded packets (*see, e.g.*, Exh. B ('435 patent) at 3:45-48), a set of ranges of discarded packets (*see, e.g., id.* at Fig. 3), or as a "bitmap" of discarded packets (*see, e.g., id.* at Fig. 5).

B. Ericsson's Proposed Construction Incorrectly Injects Additional Limitations Into the Claims

Ericsson's proposed construction unnecessarily injects into the claim language two elements: (1) that the discard notification be a "control message," (2) in an Automatic Repeat Request scheme. "Control message" appears nowhere in the '435 patent and is not a term with an ordinary meaning for the jury to apply. Instead, Ericsson seeks this construction to confuse the jury into thinking that "control message" references in the accused 802.11 standards

documents refer to the claimed data packet discard notification message. This is unnecessary, not supported by the intrinsic record, and may confuse the jury. Ericsson's proposed "Automatic Repeat Request" element is unnecessary because the preamble already includes a reference to an ARQ protocol, and neither side has suggested that it is a limitation on the claims.

V. OVERVIEW OF THE '215 PATENT

As discussed above, ARQ protocols allow a receiver and transmitter to use acknowledgement messages to address transmission errors by confirming receipt of successfully received data packets. *See, e.g.,* Exh. D ('215 patent) at 1:38-41. The '215 patent concerns a particular method for minimizing the size or number of such acknowledgement messages, which are referred to in the '215 patent as "feedback responses."[4] *See id.* at title, 1:14-18, 2:38-39. The specific solution offered by the '215 patent is to *customize* the type of feedback response to the errors that prompt the response. Ericsson appears to argue that the invention of the '215 patent is merely the use of a "type" field to indicate a particular type of feedback response from a number of different message types. Pl. Br. at 4. But that cannot be the correct scope of the claims because the '215 patent's "Background" recognizes that prior art ARQ protocols ***already*** used different types of feedback responses. Exh. D ('215 patent) at 2:48-50 ("Two main methods are currently used for coding the SNs within S-PDUs."). For example, some prior art ARQ protocols used a "LIST" feedback response, while others used a "BITMAP" feedback response. *Compare id.* at 3:13-16 *with id.* at 3:43-45. Moreover, in some cases, a single protocol could use more than one type of feedback response. *Id.* at 3:13-16. In fact, the '215 patent devotes ***four***

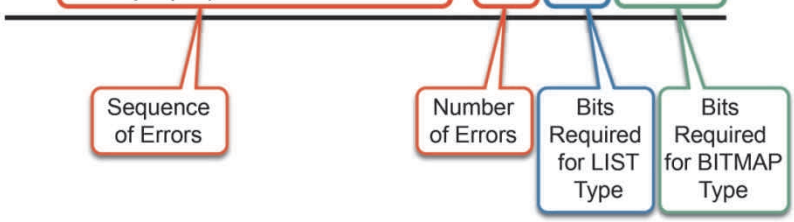
[4] The '215 patent also refers to feedback responses as "service protocol data units" or "S-PDUs." *See id.* at 2:46-48.

columns to "Background" describing how the prior art included different types of feedback messages. *Id.* at 1:20-4:40.

The '215 patent recognizes that some types of feedback responses may require fewer bits than others, depending on the transmission errors identified by the receiver. *Id.* at 4:1-17. To illustrate this point, the '215 patent's Background section includes Table 1, which shows the size in bits of different types of feedback responses (in the "LIST" and "BITMAP" columns) depending on the number and sequence of errors received by the receiver (in the "Erroneous D-DPUs" and "SN" columns).

TABLE 1

	Erroneous D-PDUs	#	Size of S-PDU (bits)	
	(SN)	SN	LIST	BITMAP
1	51–77	27	42	141
2	1, 25, 50, 95	4	114	141
3	27–30, 35, 39, 41, 91–93	10	138	141
4	3, 7, 11, 16, 33, 45, 55, 66, 78, 82, 91	11	282	141
5	10–29, 31, 33, 36	23	114	141



Id. at 4:18-29 (Table 1). As can be seen from Table 1, a "LIST" type may be most efficient in response to some sequences of data units (for instance, **line 1**, where a LIST type requires fewer bits than a BITMAP type). By contrast, a "BITMAP" type may be most efficient in response to other sequences of data units (for instance, **line 4**, where a LIST type requires more bits than a BITMAP type). *Id.*

The specific problem to which the '215 patent was directed, however, was that prior art ARQ protocols always used the *same*, "static" method for constructing feedback responses—*i.e.*,

only LIST feedback responses or only BITMAP feedback responses—without regard to the efficiency that would arise from flexibility that is suggested by Table 1:

> ***A significant problem*** with existing ARQ protocols is that they are ***static in construction*** (e.g., fixed length messages are used). In certain situations, this approach leads to a ***waste of bandwidth resources***, because a great deal of overhead information is transmitted unnecessarily.

Id. at 3:46-50; *see also* 4:30-33.

To overcome this problem, the '215 patent proposes a method for constructing a feedback response that is "responsive to" the receipt of incoming data units. *See, e.g., id.* at claims 1, 15, 25; Tables 1 and 3. By constructing an optimal feedback response "in response to" the incoming data, the system can "minimize feedback responses" so as to "optimize system performance":

SUMMARY OF THE INVENTION

> In accordance with an embodiment of the present invention, a ***method for minimizing feedback responses in an ARQ protocol is provided***, ***whereby different mechanisms can be used to indicate erroneous D-PDUs and construct S-PDUs.*** In particular, these different mechanisms can be combined in a single S-PDU. The S-PDUs ***are constructed so as to optimize system performance*** in accordance with certain criteria.

Id. at 4:42-54; *see also id.* at abstract and 3:46-50. In accordance with this invention, the receiver constructs the optimal feedback response by either minimizing the size of the feedback response or maximizing the number of data units represented in a feedback response of a given size in response to the receipt of data units. *See id.* at 4:43-54, 9:37-50 (Table 3). A "type identifier field" is used to identify the type of feedback response that was selected for a given set of data units. *See id.* at 5:64, 7:60-65.

VI. CONSTRUCTION OF DISPUTED TERMS IN THE '215 PATENT

A. "Responsive To The Receiving Step, Constructing A Message Field ... Including A Type Identifier Field"

Term	Ericsson's Construction	Defendants' Construction
responsive to the receiving step, constructing a message field . . . including a type identifier field Claims 1, 15, 25	responsive to the receiving step, generating a message field including a field that identifies the message type of the feedback response message from a number of different message types	responsive to the receiving step, generating a message field including a field identifying the type of feedback response that is selected from multiple available feedback responses in order to minimize the size or number of feedback responses

Ericsson and Defendants all agree that the "constructing" claim language requires interpretation. But it is Defendants who construe the claim phrase consistent with the '215 invention: namely, optimization of system performance by minimizing the size or number of feedback responses in response to the receipt of data units. Defendants' construction is far from merely "superfluous" (as Ericsson asserts). Rather, Defendants capture the actual inventive concept claimed to overcome the prior art problems identified in the specification. Ericsson's proposed construction, by contrast, strips the claims of the actual invention.

First, each independent claim explicitly concerns "a method for ***minimizing feedback responses*** in an ARQ protocol," in which the construction of the optimal feedback response is "***responsive to the receiving step.***" *See* Exh. D ('215 patent) at claims 1, 15, and 25.[5] Unlike the use of a "static" message type in the prior art, the claims require construction of a feedback response "in response to" the incoming data—thereby allowing the system to realize the point of the alleged invention—*i.e.,* to "minimize feedback responses" so as to "optimize system performance." *Id.* at 4:42-54; *see also id.* at abstract and 3:46-50. Consistent with Defendants'

[5] Similar language appears in independent claim 45.

construction, the claims additionally require the inclusion of a "type identifier field" that allows the system to identify which feedback response was chosen.

The intrinsic evidence consistently confirms that the '215 invention is directed to minimizing the size or number of feedback responses in response to the receipt of data units. In fact, this point is so critical that even the cover page, the title and abstract of the patent confirm it—*i.e.,* a "Method for ***Minimizing Feedback Responses*** in ARQ Protocols." Exh. D ('215 patent) at title; *see also id.* at abstract ("A method for ***minimizing feedback responses*** in an ARQ protocol is disclosed, whereby different mechanisms can be used to indicate erroneous D-PDUs and construct S-PDUs.").

The specification further confirms Defendants' proposed construction. As discussed above, the "problem" to be solved concerns the inefficiencies that result from "static" use of a particular type of feedback response, when a more efficient type of response is available. *Id.* at 3:46-50. Contrary to Ericsson's assertions, this problem is not simply about "***efficient switching***" between multiple feedback response types (Pl. Br. at 4), but rather how to ***"efficiently represent (encode) in a message"*** a feedback response in response to "an arbitrary amount and distribution" of incoming data. Exh. D ('215 patent) at 4:30-33. To overcome that problem, the "Summary of the Invention" confirms the central point of the '215 patent—to ***optimize system performance by minimizing feedback responses.*** *Id.* at 4:48-54. Consistent with Defendants' proposed construction, the solution to this problem is to "select" a feedback response to optimize system performance:

> ***The solution to the problem*** is to have a set of different types of mechanisms to indicate the erroneous D-PDUs and build up the S-PDU by using one or combining several of these mechanisms. ***The different methods chosen when building an S-PDU may then be selected in such a way that it optimises the performance*** according to some criteria.

Exh. E (Prov. Appln. No. 60/128,517) at 8;[6] *see also* Exh. D ('215 patent) at 9:12-14 ("[T]he combination is ***selected so as to minimize the total size of the S-PDU.***"). Importantly, as taught in the "Summary of the Invention," the feedback response is customized in response to the incoming data units by using specific criteria, such as the size of the feedback response or the number of data units identified in a feedback response. Exh. D ('215 patent) at 4:50-54.

Contrary to Ericsson's assertions, this is not merely some side "benefit" of the invention—***it is*** the invention. *See* Pl. Br. at 5. Throughout the specification, the '215 patent repeatedly confirms that the alleged invention minimizes feedback responses. *See, e.g.*, Exh. D ('215 patent) at 5:51-59, 9:10-14, 9:27-36. Moreover, the '215 patent expressly illustrates how the invention is achieved, by calculating the sizes of "LIST" and "BITMAP" feedback responses in response to different sequences of incoming data units, allowing for the system to select the particular feedback response with the smallest size. *See id.* at 4:1-40 (including Table 1), 9:27-50 (including Table 3).

While Ericsson concedes that the '215 patent concerns "efficient switching between multiple encoding methods" (Pl. Br. at 4), its description of the '215 patent wholly abandons the intrinsic record, lacking a single citation to the patent or any other evidence. *Id*. at 4-5. Ericsson's argument that the '215 invention is merely directed to the inclusion of a type identifier field in a feedback response is refuted by the fact that this would not solve or even address the problem repeated throughout the patent as the focal point of the invention—*i.e.,* the inefficient use of a "static" feedback response, which "leads to a waste of bandwidth resources."

---

[6] The '215 patent incorporates its provisional application by reference. *See* Exh. D ('215 patent) at 1:6-9. As such, the provisional is part of the specification and is considered intrinsic evidence. *See Cook Biotech Inc. v. Acell, Inc.*, 460 F.3d 1365, 1375-78 (Fed. Cir. 2006).

Exh. D (’215 patent) at 3:46-50.

Contrary to Ericsson’s assertions, Defendants’ proposed construction does not artificially inject “selecting” “or “minimizing” requirements to the claims. Those requirements are already in the claim as part of the element requiring the construction of a feedback response in response to incoming data units. *See, e.g.,* claim 1 (“responsive to the receiving step, constructing a message field . . . ”). As repeatedly confirmed throughout the specification, that element ***is*** the allegedly inventive step of selecting a type of feedback response in order to optimize system performance. *Id.* at abstract, 4:30-40, 4:41-54, 5:51-59; *see also id.* at 9:12-14 (feedback response “selected” to minimize size); Exh. E (Prov. Appln. No. 60/128,517) at 8 (feedback response (S-PDU) “selected” to optimize performance). In fact, Ericsson contends that the corresponding structure for a nearly identical element in claim 45 ***requires*** different feedback responses that “can be used to indicate erroneous data units ***so as to optimize performance*** . . . .”). Pl. Br. at 7.

According to the Federal Circuit, the claims should be construed in order to capture the scope of this actual invention. *See Retractable Techs., Inc. v. Becton, Dickinson and Co.*, 653 F.3d 1296 (Fed. Cir. 2011) (citing *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (en banc)). This fundamental principle is no stranger to Ericsson. As it agrees in its discussion of the ’019/’568 patents, it is important that proposed constructions “capture[] the purpose” of the invention. *See* Pl. Br. at 16.

B. “Means For Receiving Said Plurality Of First Data Units, And Constructing One To Several Message Fields . . . Including A Type Identifier Field . . .”

The parties agree that the “means for receiving . . .” element of ’215 patent claim 45 should be construed in accordance with 35 U.S.C. § 112 ¶ 6.

(1) Function. The claim element at issue here is the same in substance as the element discussed immediately above, but restated in means-plus-function language. As such, the parties' proposals mirror their proposals above. For the reasons previously discussed, Defendants' proposal should be adopted.[7]

(2) Structure. Although the parties' structure corresponding to the claimed limitation overlaps somewhat, Ericsson complains about the focus of Defendants' proposed structure, Figures 4-6 and Table 1 of the patent. Pl. Br. at 8. First, Ericsson's proposed corresponding structure includes similar references to the specific feedback responses. *See, e.g.*, *id*. at 7 ("[T]he mechanisms refer to any of the methods described for constructing a bitmap feedback response message disclosed at '215::3:17-28 and '215::6:8-48 . . . "). Moreover, Figures 4-6 and Table 1 show how to construct different feedback response types, which provides support for the Defendants' proposed function. *See, e.g.*, Exh. D ('215 patent) at 4:11-54. As set forth in Defendants' Summary Judgment Motion, Ericsson's corresponding structure includes some relevant structures, but incorrectly omits others.

VII. OVERVIEW OF THE '019 AND '568 PATENTS

U.S. Patent Nos. 5,987,019 ("the '019 patent") and 6,466,568 ("the '568 patent") relate to the use of a "service type identifier" to distinguish between different types of data transmitted on traffic channels. Exh. F ('019 patent) at 1:10-15; *see also* 2:65-3:22.[8] According to these two

---

[7] Defendants' proposed construction in the parties' Joint Claim Construction Statement inadvertently omitted from the recited function the claim language following the "type identifier field." The parties agree that the omitted language should be part of the claimed function. A corrected version of Defendants' proposed construction is included in the claim construction chart attached as Exhibit A.

[8] The claim language of these patents virtually mirror each other; the asserted claims of the '019 patent are method claims, while the '568 patent are apparatus claims. The disputed terms at issue are identical for both. The '568 patent is attached as Exhibit G.

patents, various types of information, also known as "services," can be transmitted on traffic channels. *Id*. at 2:16-26. In setting up the problem to be solved, the patents recognize that different services, *e.g.*, voice or video, may require different optimal channel coding schemes, involving different rates of transmission, amounts of error protection, or delay tolerances. *Id*. at 2:27-55. For example, according to the patents, optimal channel coding for voice services may be different than for fax services. *Id.* at 2:42-50, 9:5-11. Moreover, as the number of different services transmitted on the traffic channel expand, the services become increasingly complex to distinguish. *Id*. at 9:24-26. Thus, as explained in the patents, it is desirable to provide for a system that can flexibly accommodate the processing of a variety of different types of services. *See id.* at 2:56-60.

To allow such a system to efficiently handle different types of services, the patents use a claimed "service type identifier" that identifies to the receiver the type of information conveyed in corresponding payload data. *Id.* 2:56-60; *see also id.* at 3:10-17. Thus, a service type identifier for "voice" services would indicate that the corresponding payload data contains voice information, and should processed accordingly. *See, e.g., id.* at Fig. 9; 7:20-25, 9:29-38, 12:3-12. Likewise, a service type identifier for "video" services would indicate that the corresponding payload data contains video information, and should be processed as such. *Id.*

Importantly, the claimed service type identifier is encoded and transmitted separately from the payload information. *See id*. at 3:9-21 ("[B]andwidth in the second (or third) time slot can be used to carry information in a fast out-of-band channel (FOC). The FOC … can be used by the receiving equipment to aid in processing the information conveyed in the payload…"); 7:29-34 ("the FOC information is 'out-of-band' (i.e., is not encoded as part of the data)"). By encoding and transmitting the claimed service type identifier separately from the payload data,

the service type identifier "can inform the mobile station of the type of information being transmitted, so that the mobile station will know how to process the received information, e.g. how to decode the received bits." *Id.* at 9:35-38. Were the service type identifier encoded and transmitted together with the payload data, the receiver would not know how to process the data, and would be unable to achieve the point of the '019 and '568 inventions—to accommodate the efficient processing of intermingled types of information. *See, e.g., id.* at 9:5-26 (describing prior art techniques, which become excessively complex as the number of different types of information expand beyond voice and data).

VIII. CONSTRUCTION OF DISPUTED TERMS IN THE '019 AND '568 PATENTS

A. "Separate From Said First Field"

Text	Ericsson's Construction	Defendants' Construction
separate from said first field	No construction necessary	In a different portion of a radio channel from said first field

The parties agree that the claimed "first field" contains the payload information, that the claimed "second field" contains the service type identifier, and that, as the references to "first" and "second" necessarily indicate, they are two distinct fields. The primary dispute then revolves around what it *additionally* means for the first field to be "***separate from***" the second field. Defendants state that this additional limitation requires the transmission of the second field in a portion of the channel separate from that used to transmit the first field—a step required to realize the claimed invention. Ericsson, on the other hand, does not provide any additional meaning to the "separate from" phrase. To Ericsson, the limitation is mere superfluous "clarification" of the already explicit and clear requirement of two distinct fields.

Ericsson is wrong. The claim language itself confirms that the "separate" phrase must have additional meaning beyond the requirement that the first and second fields be distinct. Because the claims require a "first" and a "second" field, those fields are already distinct; that is

what the modifiers "first" and "second" mean. But the claim adds an ***additional*** requirement—that the second field be "***separate from said first field***." By failing to provide any additional meaning to that phrase, Ericsson improperly renders it superfluous. *See, e.g., Tessera, Inc. v. Micron Tech., Inc.*, 423 F. Supp. 2d 624, 632 (E.D. Tex. 2006) (rejecting plaintiff's construction that effectively read a limitation out of the patent, rendering its presence superfluous) (citing *Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1379 (Fed. Cir. 2006) (rejecting broadening construction that renders limitation "nearly meaningless.")).

Worse yet, Ericsson's construction strips the heart of the invention out of the claims, *i.e.*, that the service type identifier is accessible to the receiver without the receiver knowing the transmission characteristics of the payload information. The "separate" limitation in the claims conveys this important aspect of the invention. *See, e.g.,* Exh. F ('019 patent) at claim 19 (requiring "transmitting" the "separate" fields "on a radio channel"); *see also* '568 patent, claim 1 (requiring a "transmitter for transmitting" the "separate" fields). This is also fully supported by the patent specification.

According to the Summary of the Invention, a separate channel, referred to as the "fast out-of-band channel" (FOC), is provided to carry the service type identifier to inform the receiver of the type of information conveyed in the payload field:

> SUMMARY
>
> ****
>
> According to some exemplary embodiments, bandwidth in the second (or third) time slot can be used to carry information in a fast out-of-band channel (FOC). ***The FOC may provide information relating to the same connection as the payload or data field in that time slot, e.g., a service type identifier which informs the mobile or base station of the type of information (e.g., voice, video or data) being conveyed in the payload.***

Exh. F ('019 patent) at 3:9-16. By providing a separate channel for the service type identifiers, the receiver is able to ascertain how to process the corresponding payload information. *Id.* at

9:35-38 ("In such a case, a change in the FOC can inform the mobile station of the type of information being transmitted, ***so that the mobile station will know how to process the received information, e.g., how to decode the received bits.***"). Because the service type identifier information is not encoded as part of the payload data, it can be read without a need to know the particular channel coding for the corresponding data:

> Note that since the FOC information is "out-of-band" (i.e., is not encoded as part of the data), mobile stations 510 and 520 advantageously ***need not be aware of the channel coding and interleaving needed to read the data fields*** in time slots 2 and 3.

Id. at 7:29-34; *see also id.* at 3:16-19. And that is the crux of the "separate field" requirement: by transmitting the service type identifier separately from the payload information, the receiver can be informed of how to decode different service types having varying transmission characteristics without knowing what those transmission characteristics are. *Id.; see also id.* at 2:56-60, 3:16-19. If the receiver had to decode the service type identifier along with the payload, the function of the service type identifier—to inform the receiver how to decode the corresponding payload data—would be irrelevant because the payload data would have already been decoded. Indeed, every embodiment confirms this because the fields are *not* merely different fields in a packet. Significantly, they are also encoded and transmitted separately, in different portions of the channel. *See*, *e.g., id.* at Figs. 6, 7, 8, 9, 11; 3:9-28, 6:37-65, 7:20-34, 8:40-47, 9:29-52, 11:53-57, 11:61-63, 12:3-13, 12:45-62. As the '019 and '568 patents recognize, using a separate channel for the service type identifier is particularly important where the service types vary rapidly and require the receiver to quickly switch between different channel coding schemes. *Id.* at 9:5-11; *see also* 3:19-22.

Ericsson's description of these patents again overlooks the key features of the inventions, and lacks any support. *See* Pl. Br. at 13. Citing no evidence at all, Ericsson characterizes the

patents as being directed to transmitting a service type identifier so that "the system could prioritize certain kinds of services over others." *Id*. The patents, however, are not directed to a system for prioritizing different types of services. Neither the patents nor the prosecution history discuss or even mention "priority," let alone the use of the service type identifier for that purpose. Through this concoction, Ericsson attempts to deflect from the actual purpose of the service type identifier, which is to separately provide the receiver with information as to how to decode corresponding payload data. *See* Exh. F ('019 patent) at 3:16-22, 7:28-34, 9:27-38, 12:3-12.

Contrary to Ericsson's assertions, Defendants' proposed construction does not limit the asserted claims to TDMA embodiments, time slots, or any other particular mode of communication. Pl. Br. at 14-15. As discussed above, the alleged invention requires that the service type identifier be transmitted in a different portion of the transmission channel than the payload information. *See* Exh. F ('019 patent) at claim 19; Figs. 6-9, 11, 2:56-60, 3:9-18, 7:20-34, 9:24-38, 11:53-57, 12:3-13, 12:47-52. As described in the patents, that portion could be provided by using a different timeslot (in TDMA systems), a different frequency band (in FDMA systems) or a different code (in CDMA systems). *See id.* at 1:11-15, 1:21-25, 1:51-58, 4:13-19 (TDMA); 1:33-42 (FDMA); 1:11-15, 4:15-19 (CDMA). The "separate field" requirement applies equally to each of these different approaches to dividing a transmission channel.[9]

[9] Ericsson erroneously asserts that because this limitation is not subject to disclaimer, no construction is necessary. *See* Pl's. Br. at 14. Claim construction, however, is not limited exclusively to those circumstances. *See, e.g., Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002) ("The specification my assist in resolving ambiguity where the ordinary and accustomed meaning of the words used or the claims lack sufficient clarity to permit the scope of the claim to be ascertained from the words alone"); *see also* Part II.

B. "A Service Type Identifier Which Identifies a Type of Payload Information"

Text	Ericsson's Construction	Defendants' Construction
a service type identifier which identifies a type of payload information	an identifier which identifies transmission characteristics of payload information	an identifier that identifies the type of information (e.g., video, voice or data) conveyed in the payload

The dispute here concerns what the "service type identifier" actually identifies. Defendants state that a "service type identifier" identifies the type of service that, according to the claim language, is a type of payload information: such as video, voice or data. *See, e.g.*, Exh. F ('019 patent) at claims 19, 22-24, abstract. Ericsson seeks to deviate from this meaning set forth in the claims, and instead posits that a service type identifier identifies not the *type* of payload information but only the "transmission characteristics of payload information." But while the claims do not require any such "transmission characteristics," they do specifically recite that the service type identifier identifies "the type of payload information."[10]

Consistent with the claim language, the '019 and '568 specification confirms that the "service type identifier" identifies the type of information conveyed in the payload. *See, e.g., id.* at 2:16-19, 2:42-50, 3:11-16, 9:6-11, 9:14-37, 9:52-56. Moreover, the specification expressly differentiates between *types of information* (e.g., voice, video or data) and *transmission characteristics* (e.g., error protection/channel coding)—concepts that Ericsson's construction improperly seeks to conflate. *See, e.g., id*. at 2:27-55 ("[t]hese various types of information

[10] Dependent claim 23 of the '019 patent further supports Defendants' construction by reciting, among other things, limitations requiring a "first ***type of information*** [that] is ***one of video, voice and data***" and a "second ***type of information*** [that] is different ***one of video, voice and data***." Exh. F ('019 patent) at claim 23. Thus, claim 23 confirms that the "type of information" identified by the "service type identifier" refers to the *actual type* of information conveyed in the payload, as opposed to the transmission characteristics of payload information.

communication … will likely have different optimal *transmission characteristics*" such as "different degrees of error protection").

The prosecution history is further dispositive on this issue, as the applicants expressly disavowed the construction Ericsson now urges. Specifically, the examiner rejected as anticipated original claim 45 (which eventually issued as claim 1 of the '568 patent), stating that the prior art "Raith" patent (U.S. 5,757,813) disclosed a "service type identifier which identifies a type of payload information." Exh. H ('568 PH, 7/12/01 OA) at 3-4; *see also id*. Exh. I ('568 PH, 2/6/02 OA) at 3; Exh. J ('019 PH, 8/2/98 Rejection) at 6-7.

In their responsive Amendment, the applicants conceded that *Raith* disclosed a reserved field containing "an indication bit for indicating the type of channel coding being used in the data field," but they argued that "*Raith* does not disclose a service type identifier which *identifies a type of payload information*." Exh. K ('568 PH, 11/21/01 Amend.) at 4, 5 (emphasis in original); *see also* Exh. L ('019 PH, 11/4/98 Amend.) at 7 (stating Raith does not disclose service type identifier). In a subsequent Amendment, the applicants repeated that although *Raith* discloses a field "for indicating the type of channel coding" (i.e., information concerning transmission characteristics), "there is nothing in Raith which explicitly or inherently discloses that the type of channel coding being used in the data field *identifies a type of payload information*." Exh. M ('568 PH 5/10/02 Amend.) at 4 (emphasis in original), at 6.[11] According to the applicants, the

[11] Indeed, because *different* types of payload information may have the *same* channel coding, the applicants further distanced the claimed "service type identifier" from Raith's use of transmission characteristics. They explained:

> [T]he type of channel coding may not necessarily identify the type of payload information. . . . Accordingly, ***it may not be possible to identify the type of payload information based upon an indication of channel coding since the type of channel coding identified may be employed for different types of information.*** *Id*. at 6.

claimed "service type identifier" must identify the *type of service (i.e., the type of payload information)* and ***not*** a transmission characteristic such as the type of channel coding:

> Accordingly, the plain language of the claim makes clear that ***Applicants are claiming the use of a field to identify the type of payload information and not the type of channel coding***.

Id. at 5; *see also 800 Adept, Inc. v. Murex Securities, Ltd*., 539 F.3d 1354, 1364-65 (Fed. Cir. 2008) (using prosecution history to support "construction already discerned from the claim language and confirmed by the written description" and to "limit the meaning of a claim term that would otherwise be read broadly"); *Omega Engineering, Inc., v. Raytek Corp.*, 334 F.3d 1314, 1324-28 (Fed. Cir. 2003) ("where the patentee has unequivocally disavowed a certain meaning to obtain his patent, the doctrine of prosecution disclaimer attaches and narrows the ordinary meaning of the claim congruent with the scope of the surrender.").

Contrary to Ericsson's assertions, Defendants' proposed construction does not limit the service type identifier to video, voice, or data. Rather, the construction aims to avoid confusion by illustrating—through examples—what "type" of service means in precisely the same way that the specification and prosecution histories do. Exh. F ('019 patent) at abstract, 2:17-29, 3:9-16; Exh. M ('568 PH, 5/10/02 Amend.) at 4-6; Exh. L ('019 PH, 11/4/98 Amend.) at 2. Defendants' proposed construction explicitly includes "e.g." to signal that those items are merely examples and are not limiting. If it would be more clear, "e.g." in Defendants' proposed construction could be replaced with "for example."

IX. OVERVIEW OF THE '516 PATENT

U.S. Patent No. 5,790,516 ("the '516 patent") is directed to the use of a well-known prior art technique called "pulseshaping" to improve communications in systems using Orthogonal Frequency Division Multiplexing, abbreviated "OFDM." As set forth in the "Background" of the '516 patent, the use of OFDM and pulseshaping were not new concepts or techniques. *See*

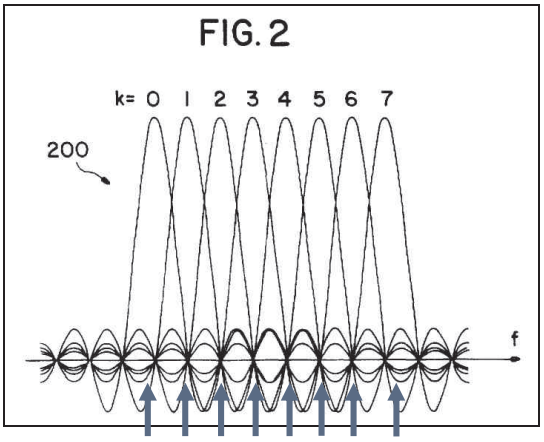
Exh. N ('516 patent) at 1:14-27; *see also*, "References Cited" (citing references discussing the use of pulseshaping in OFDM systems). In OFDM, multiple data symbols carrying information are conveyed on a number of carrier waves referred to as "subcarriers," which are combined (or "multiplexed") together and transmitted over a single radio frequency channel. *Id*. at 1:23-27, 1:36-2:4. Each of the subcarriers is precisely spaced so that the subcarriers are "orthogonal" to each other, meaning that each subcarrier is designed to not overlap, or interfere, with the other subcarriers. This allows multiple data symbols to be transmitted on a single channel simultaneously. *Id*. at 1:30-34 ("For an OFDM system, the subcarrier frequencies are f_k, k=0 . . . . N-1, are defined so the subcarriers are ***orthogonal***, i.e., the power spectra of each the subcarriers is zero at the frequencies of each of the other subcarriers."); *see also id.* at 2:40-44.[12]

As with other carrier waves, the subcarriers in an OFDM system are still susceptible to interference, such as intersymbol interference (ISI) and intercarrier interference (ICI). *See id.* at 3:3-10. Problems arise when these types of interference cause the individual subcarriers to lose their orthogonality, in which case they will overlap with each other in an interfering manner and some transmitted information is then lost. *Id*. ("From FIG. 2 it is clear that Doppler spread would destroy the orthogonality of the subcarriers…"). As was well-known in the art at the time of the '516 invention, pulseshaping can be used to overcome these problems by concentrating the power of each subcarrier in the non-overlapping portions of the waves, while "rolling off" the remainder of the subcarrier wave near the overlapping portions. *See, e.g.*, *id.* at 5:43-58, 5:62-6:1. This allows the receiver to more easily discern one subcarrier from another. *Id*. at 5:46-48,

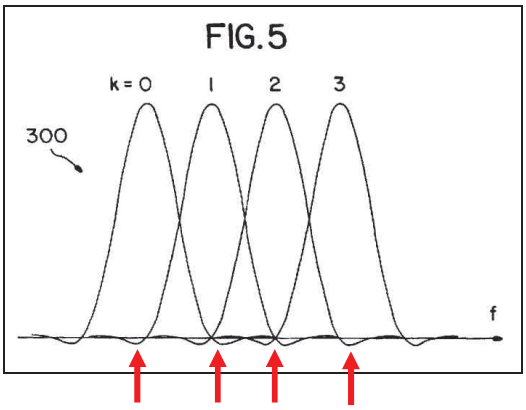
[12] In OFDM, an inverse fast Fourier transform ("IFFT") function is used in the transmitter to assign data symbols to subcarriers for transmission. Each "point" on the IFFT corresponds to a separate subcarrier, so that the number of IFFT points equals the number of subcarriers in the system. Thus, a system having "N" subcarriers would require an "N-point" IFFT.

5:55-57. The degree of pulseshaping to be applied is referred to in the art as the "rolloff factor." *Id*. at 4:24-32. The more pulseshaping that is used, the higher the rolloff factor, and the greater the reduction in interference between subcarriers. *Id*.

The use of pulseshaping, however, is not without a cost. As discussed in the '516 patent, because pulseshaping "rolls off" portions of the subcarrier waves across the channel, fewer subcarriers—and consequently, less data—can fit into the channel at the same time. Figures 2 and 5 of the '516 patent illustrate this principle, showing how the use of pulseshaping expands the width of each subcarrier, and as a result, fewer subcarriers can fit in the channel (four versus eight):



N Subcarriers Without Use Of Claimed Pulseshaping Waveform



N' Subcarriers With Use Of Claimed Pulseshaping Waveform

Id. at Figs. 2, 5; *see also id*. at 4:26-35 ("***The higher the rolloff factor, the greater the reduction in the number of subcarriers that can be used.*"**); Figs.3A-C; 5:61-6:1, 6:49-54.

To accommodate the cost of using pulseshaping, the '516 patent provides a method for adjusting the number of subcarriers in relation to the amount of pulseshaping used:

> The change in spectra when using pulseshaping changes the orthogonality relationships of the subcarriers within a particular frequency band. Therefore, ***using a particular pulseshaping function may require adjustment in the choice of subcarriers chosen in order to maintain orthogonality during data transmission***.

Id. at 6:3-8. In accordance with the specific method patented in the '516, a "frequency adjustment factor" is calculated which depends on the amount of rolloff used in connection with a given pulseshaping waveform. *Id.* at 5:10-11 ("where α is an ***frequency adjustment factor that depends on the pulseshaping function*** w(t) used"); 6:9-13 (defining the frequency adjustment factor (referred to as "α") as a function of the rolloff factor (referred to as "B") where α =2/2-B). This frequency adjustment factor is then used to calculate the appropriate adjusted number of subcarriers based on the pulseshaping waveform used, defined in the patent as "N' subcarriers." *Id*. at 4:66-5:11, 6:8-29, 7:2-10, 8:53-9:4, 9:5-9. As discussed below, the variable N' does not merely refer to any number of subcarriers, but instead refers to the adjusted number of subcarriers based on the pulseshaping waveform used. *Id.*

X. CONSTRUCTION OF DISPUTED TERMS IN THE '516 PATENT

A. "Pulseshaping Waveform"

Term	Ericsson's Construction	Defendants' Construction
pulseshaping waveform	a waveform that lessens the effects of both time dispersion and intersymbol interference in an OFDM signal	a waveform that changes the shape of said first data signal

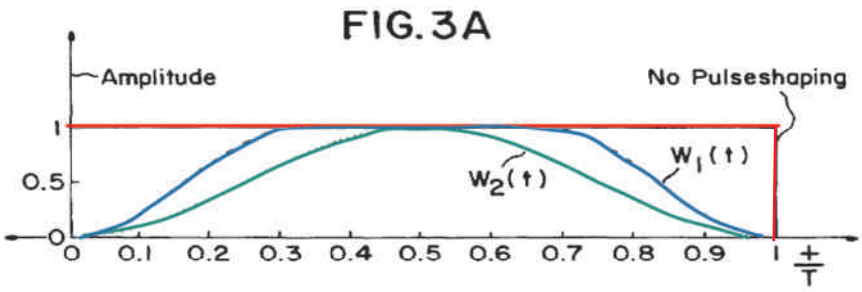
The parties agree that that the claimed "pulseshaping waveform" includes a "waveform." Defendants' proposed construction is consistent with the '516 specification and the well-known meaning of "pulseshaping" *i.e.*, changing the shape of the data signal. By contrast, as explained below, Ericsson's proposed construction omits this well-known meaning and instead only lists potential effects of pulseshaping.

1. The Intrinsic And Extrinsic Records Support Defendants' Construction

A "pulseshaping waveform" is just that—a waveform that shapes the pulse to be transmitted. The '516 specification confirms this ordinary meaning, *i.e.,* that the transmitted waveform is shaped by the pulseshaping:

> The critical factor is that the pulseshaping function have a portion of its amplitude less than its maximum amplitude so that ***the transmitted waveform is shaped by the pulseshaping.***

Exh. N ('516 patent) at 9:17-20. This is confirmed throughout the specification. For example, Figure 3A, annotated below, shows that pulseshaping changes the shape of the data signal:



Id. at Fig. 3A. As shown above, the original signal (shown in red) is a square wave. By using different pulseshaping waveforms, the shape of that signal is changed (shown in blue and green). According to the text corresponding to this figure, the pulseshaping waveform attenuates the first and last portions of the signal, thereby changing its shape. *Id*. at 5:42-46. The ordinary meaning of pulseshaping is uniformly confirmed by contemporaneous technical dictionary definitions, as well. *See* Exh. O (*The IEEE Standard Dictionary of Electrical and Electronics Terms*, 6th ed. 1996), ("intentionally ***changing the shape of a pulse***"); Exh. P (*McGraw-Hill Electronics Dictionary*, 6th ed. 1997) (same); Exh. Q (*Modern Dictionary of Electronics*, 6th ed. 1997) (same). Consistent with this ordinary meaning, the '516 claim language requires the pulseshaping waveform to have a "first" and "second" amplitude, where the first amplitude is

greater than the second. Exh. N ('516 patent) at claim 1. Because the pulseshaping waveform has at least two different amplitudes (as opposed to a single, unchanging amplitude), it will necessarily change the shape of the signal, in accordance with Defendants' proposed construction.

By contrast, Ericsson's construction omits this well-known meaning of "pulseshaping waveform." With respect to Ericsson's additional requirement that the pulseshaping waveform "lessens the effects of both time dispersion and intersymbol interference," this may be an *effect* of using a pulseshaping waveform if application of the technique achieves its goals, but is itself neither a requirement nor a result that will necessarily occur. Moreover, as Ericsson concedes, other effects of using pulseshaping exist, such as the reduction of frequency dispersion and intercarrier interference. *See* Pl. Br. at 18, 20. But Ericsson arbitrarily omits these effects from its construction. Although all of these concepts may be a potential result from using a pulseshaping waveform, neither the '516 specification, nor the plain and ordinary meaning of the term require them, and it is inappropriate to use the construction process to graft those concepts into the meaning of the claim term. Furthermore, nothing in the claim language or the term "pulseshaping waveform" limits the application of a pulseshaping waveform to only OFDM signals, as Ericsson has attempted to do with its proposed construction.

B. "Performing An N'-Point Inverse Fast Fourier Transform (IFFT)"

Term	Ericsson's Construction	Defendants' Construction
performing an N'-Point Inverse Fast Fourier Transform (IFFT)	performing an N'-point IFFT such that N' refers to the number of IFFT points that are required as a result of the pulseshaping waveform	performing an N'-point IFFT such that N' refers to an adjusted number of subcarriers depending on the pulseshaping waveform used

The parties agree that the term "performing an N'-point Inverse Fast Fourier Transform (IFFT)" requires construction defining ***N'***. As set forth in Defendants' proposed construction, N'

is expressly defined in the '516 specification as the adjusted number of subcarriers when using pulseshaping in accordance with the alleged invention. Ericsson's proposed construction, by contrast, merely repeats the claim language without according any meaning to N', let alone the specific meaning explicitly set forth in the specification.

1. The Intrinsic Record Supports Defendants' Construction

The '516 specification explicitly defines N' as the adjusted number of subcarriers depending on the pulseshaping waveform used. According to the '516 patent, a key point of the alleged invention is to adjust the number of subcarriers based on the pulseshaping waveform used, in order to maintain orthogonality (and thus the integrity of the transmitted information). *See* Exh. N ('516 patent) at 6:2-8; *see also* 4:28-36, 5:5-11, 6:49-60, 7:5-10, 8:52-9:4. This adjustment is performed through the use of a frequency adjustment factor, "α," which depends on the rolloff factor of the particular pulseshaping waveform used. *See, e.g., id.* at 6:5-13; 5:10-12 ("α is an frequency adjustment factor that depends on the pulseshaping function w(t) used."). Once the frequency adjustment factor is calculated, the system can determine the corresponding "adjusted" number of subcarriers, which the '516 patent refers to as ***N'***:

> In the embodiment of the invention the number N' of data symbols C_k transmitted equals ***the number N' of subcarriers used and is defined as N' = N/α.***

Id. at 7:7-10. These N' subcarriers are a function of the frequency adjustment factor, *α,* which depends on the pulseshaping waveform. *See id.* at 4:66-5:11; *see also* 5:62-6:1, 6:8–13, 6:49-60, 7:2-10, 8:52-9:14.

As shown above, Figures 2 and 5 illustrate the number of subcarriers before the application of the alleged invention (N subcarriers, in Fig. 2) and the reduced "adjusted" number of subcarriers after the application of the invention (N' subcarriers, in Fig. 5). *Id.* at Figs. 2, 5; *see also* Figs. 3A-C; 6:57-60 ("[f]or a fixed given bandwidth, ***the pulseshaping of the invention***

requires less data symbols per unit time than conventional OFDM in which every available orthogonal subcarrier is used.").

In every embodiment, the '516 patent confirms that the number of subcarriers used is reduced as compared to conventional OFDM, depending on the pulseshaping waveform. For example, in certain embodiments, the number of subcarriers is reduced by half, and only every second subcarrier is used. *Id*. at 6:26-29 ("Therefore, for a given bandwidth, ***every second subcarrier, as compared to conventional OFDM***, is utilized to transmit the set of data symbols defined by Ck(m)."). This reduction is calculated based on the rolloff and frequency adjustment factors, and as such is attributable to the particular pulseshaping waveform used. *Id.* at 6:14-29. If the number of subcarriers used is not adjusted, N' is equal to N, implying that no pulseshaping has taken place at all. *See id.* at 6:1-3; Figs. 3A-C. Thus, as reflected in Defendants' construction, the number of subcarriers used in the invention, N', depends on the pulseshaping waveform.

It is undisputed that the claim term N' has no independent meaning. In such circumstances, a claim term defined by the applicants in the specification should be accorded that meaning. *Irdeto Access, Inc. v. Echostar Satellite Corp.*, 383 F.3d 1295, 1300 (Fed. Cir. 2004) ("[I]f a disputed term has 'no previous meaning to those of ordinary skill in the prior art[,] its meaning, then, must be found [elsewhere] in the patent.'") (quoting *J.T. Eaton & Co. v. Atl. Paste & Glue Co.*, 106 F.3d 1563, 1568 (Fed. Cir. 1997)); *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996) ("Although words in a claim are generally given its ordinary and customary meaning, a patentee may choose to be his own lexicographer and use terms in a manner other than its ordinary meaning, as long as the special definition of the term is clearly stated in the patent specification or file history.").

2. Ericsson's Construction Fails To Clarify The Term

The fact that the claim refers to an "N'-point IFFT" does not change the fact that N' refers to the adjusted number of subcarriers depending on the pulseshaping waveform used. If N' subcarriers are used, an N'-point IFFT is required to accommodate those subcarriers—the N' number applies equally to subcarriers and its corresponding IFFT points. The '516 specification confirms that N' refers to both the adjusted number of subcarriers and IFFT points. Exh. N ('516 patent) at 7:2-30. Likewise, contrary to Ericsson's assertions, Defendants' proposed construction does not introduce a comparison between the claimed IFFT used and some other IFFT. *See* Pl. Br. at 22. The applicants defined N' in the specification, and Defendants are simply using the applicants' definition. Ericsson, on the other hand, ignores the express definition in the specification and provides no practical definition for N' at all.

XI. OVERVIEW OF THE '468 PATENT

The '468 patent relates to a modular base station "capable of being used with two or more cellular telecommunications systems that each operate according to a different system standard." Exh. R ('468 patent) at abstract, 1:5-10, claim 1. The patent explains that the mobile unit and base station used in one telecommunications system "generally will not operate in another system" because telecommunications systems "operate according to many different standards" and each standard "requires unique equipment and electronics . . . conforming to that particular standard." *Id*. at 1:40-64. The '468 patent attempts to solve this problem by disclosing a base station with PCMCIA (PC & Memory Card International Card Association) card slots, into which operators can mount, remove and swap cards containing necessary components of various telecommunications systems. *See id.* at 3:6-29. The system components allow the base station to connect one device (e.g., a cell phone) to another device within the same telecommunications system. The base station can thus support whatever system standard or standards are

implemented by the circuitry and logic cards inserted into the card slots. Through the use of multiple cards and card slots, the claimed base station can be "configured so that a single system can be implemented in the base station at one time . . . [or] two systems can be implemented simultaneously in the base station." *Id*. at 3:17-25, 5:24-34, 5:58-6:7, Figs. 3B, 6.

Notably, although the patent is directed to a *cellular* base station that supports *wireless* telecommunications systems, Defendants, to reduce the number of claim construction disputes, have agreed to modify their proposed constructions to remove the word "wireless." Thus, Defendants' modified construction of "telecommunication system" is a "communication system that operates according to a single system standard," and Defendants' modified construction of "system component" is "a removably mountable component required for the base station to connect a device to another device within the same telecommunications system."

XII. CONSTRUCTION OF DISPUTED TERMS OF THE '468 PATENT

In its opening brief, Ericsson disputed Defendants' constructions only to the extent they included the term "wireless", a dispute Defendants have now eliminated. Ericsson has not, and cannot, legitimately dispute the remainder of Defendants' constructions.[13]

A. "Telecommunications System"

Claim Term	Ericsson's Construction	Defendants' Construction
telecommunications system	no construction necessary	communication system that operates according to a single system standard

The claim language itself recites that the claimed base station is for use "in a ***plurality*** of telecommunications systems ***operating according to different system standards***." Exh. R ('468

[13] Defendants have moved for summary judgment of indefiniteness based on claim 1, element 3's insoluble ambiguity.

patent) at claim 1. Thus, consistent with Defendants' construction, the claimed base station can support different systems that each operate according to its own single system standard.

The specification also confirms Defendants' construction by explaining that each system *standard* applies to one telecommunications *system* with unique equipment and electronics:

> *Each of the system standards* defines the specific frequencies, data rates, data formats, and related parameters for both voice and data communications between the base stations and mobile units *of the particular system*. These systems *vary from each other* in many aspects of operation. *Each of the standards* requires *unique* equipment and electronics for the mobile units and base stations which make up ***the system*** **conforming to that *particular standard***."

Id. at 1:55-62. The specification further explains that a "mobile unit or base station which can be used in one system generally *will not operate in another system"* because each system operates according to a "*particular standard*." *Id.* at 1:60-63. The invention is thus directed to a modular base station that can support multiple telecommunications systems, each of which operates according to a single system standard:

> This invention allows a flexible response to the varying requirements on base station equipment, when the base station comprising the chassis is to be used in telecommunications systems operating according to different standards. A base station designed according to the teachings of the invention is easily and quickly ***modifiable for use in systems operating according to different wireless standards***.

Id. 2:16-43; 1:60-63. Finally, the specification confirms Defendants' construction by identifying only standards that support one system—and only systems that operate according to a single system standard. *Id*. at 1:35-54, 1:64-2:15, 4:15-20, Figs. 7A, 7B (identifying the Advanced Mobile Phone System network, IS-54 dual mode system, Personal Digital Cellular, various CDMA standards, Cellular Digital Packet Data standard, the Nordic Mobile Telephone and Total Access Communication system analog systems, the Global System for Mobile Communications standard, etc.). In contrast, the specification does not identify any telecommunications systems that operate according to more than one standard. *Id.*

Against this backdrop, Ericsson's position that no construction is necessary appears to be an effort to achieve an overly broad interpretation of "telecommunications systems" that could extend far beyond what is disclosed in the patent and recited in the claims. Without construction, for example, a jury could improperly understand that "telecommunications system" is a broad umbrella term covering all cellular—or wired—systems, in general—a concept unsupported by, and contrary to, the patent disclosures. Ericsson's proposal ignores both the manner in which the term is used in the specification and the specific context of the term in the claim, which confirm that each "telecommunications system" operates according to a different system standard. Defendants' construction is necessary to provide context, avoid confusion, and establish proper claim scope.

B. "System Component"

Claim Term	Ericsson's Construction	Defendants' Construction
system component	no construction necessary	a removably mountable component required for the base station to connect a device to another device within the same telecommunications system

Defendants' construction of "system component" is also supported by the patent and necessary to establish the proper scope of claim 1. As a preliminary matter, the claimed "system component" must be "removably mountable" because claim 1 recites "at least one PCMCIA card slot ***for removably mounting*** *at least one system component* . . . ." If the claimed system component is not *removably mountable*, as proposed by Defendants, claim 1's PCMCIA card slot could not possibly be used for its stated purpose, "for removably mounting" at least one system component.

Moreover, the specification confirms that, when inserted into the base station card slot, the claimed "system component," connects a device to another device with the same telecommunications system. Indeed, the claimed modular base station achieves its stated

purpose to be used in a plurality of telecommunications systems through the use of card slots that removably mount cards, which each contain components for a single system, for example, "RF and logic circuitry" for each system that is being supported by the base station. *Id*. at claim 1, Figs. 3B, 5, 6, 7A, 7B, 5:24-6:8. It is through these removably mountable system components in the base station that one device in a system can connect to another device in a system:

> In a typical cellular radio system, the user, or the user's vehicle, carries a relatively small, wireless device which communications [sic] with a base station that connects the user to other mobile stations in the system . . . .

Id. at 1:35-40.

Indeed, *without* the system components to connect devices within the same telecommunications system, the base station could not possibly be "configured so that a single system can be implemented in the base station at one time . . . [or] two systems can be implemented simultaneously in the base station." *Id*. at 3:17-25.

Against this backdrop, Ericsson argues for no construction, apparently hoping to achieve a claim scope broad enough to cover *any* equipment that operates within any or all telecommunications systems, and/or according to any or all system standards. But there is no disclosure in the patent of any single system component that is removably mountable and that can support multiple systems and/or standards. Defendants' construction is mandated by the patent disclosures and should be adopted.

XIII. CONCLUSION

For the reasons set forth above, Defendants respectfully request that the Court adopt their proposed constructions.

Dated: June 1, 2012

Respectfully submitted,

/s/ Adaline J. Hilgard

Scott D. Baker, *Pro Hac Vice* (Cal. SBN 84923)
John P. Bovich, *Pro Hac Vice* (Cal. SBN 150688)
Christine M. Morgan, *Pro Hac Vice* (Cal. SBN 169350)
Adaline J. Hilgard, *Pro Hac Vice* (Cal. SBN 173213)
William R. Overend, *Pro Hac Vice* (Cal. SBN 180209)
Jonah D. Mitchell, *Pro Hac Vice* (Cal. SBN 203511)
REED SMITH LLP
101 Second Street, Suite 1800
San Francisco, CA 941015
Telephone: +1 415 543 8700
Facsimile: +1 415 391 8269
Email: sbaker@reedsmith.com
Email: jbovich@reedsmith.com
Email: ahilgard@reedsmith.com
Email: woverend@reedsmith.com
Email: jmitchell@reedsmith.com

Trey Yarbrough (Bar No. 22133500)
Debby E. Gunter (Bar No. 24012752)
YARBROUGH & WILCOX, PLLC
100 E. Ferguson, Ste. 1015
Tyler, Texas 75702
Telephone: +1 903 595 3111
Facsimile: +1 903 595 0191
Email: trey@yw-lawfirm.com
Email: debby@yw-lawfirm.com

Counsel for Defendants, D-LINK SYSTEMS, INC., NETGEAR, INC., ACER, INC., ACER AMERICA CORPORATION, and GATEWAY, INC.

S.J. Christine Yang (admitted *pro hac vice*)
Duncan Palmatier (admitted *pro hac vice*)
Victoria Hao (admitted *pro hac vice*)
THE LAW OFFICES OF S.J. CHRISTINE YANG
17220 Newhope Street, Suite 101
Fountain Valley, California 92708
Tel: (714) 641-4022; Fax: (714) 641-2082
E-Mail: cyang@sjclawpc.com
E-Mail: dpalm@dpalmlaw.com
E-Mail: vhao@sjclawpc.com

Counsel for Defendant D-LINK SYSTEMS, INC.

/s/ Dwayne C. Norton (with permission)
Michael J. Newton (Texas Bar No. 24003844)
Jason W. Cook (Texas Bar No. 24028537)
Stacey G. White (Texas Bar No. 24053220)
Dwayne C. Norton (Texas Bar No. 24076139)
Shaun W. Hassett (Texas Bar No. 24074372)
Brady Cox (Texas Bar No. 24074084)
ALSTON & BIRD LLP
2828 North Harwood St, Suite 1800
Dallas, TX 75201
Phone: (214) 922-3400
Fax: (214) 922-3899
Email: mike.newton@alston.com
Email: jason.cook@alston.com
Email: stacey.white@alston.com
Email: dwayne.norton@alston.com
Email: shaun.hassett@alston.com
Email: brady.cox@alston.com

Marsha E. Mullin (California Bar No. 93709)
ALSTON & BIRD LLP
333 South Hope Street, 16th Floor
Los Angeles, CA 90071
Phone: (213) 576-1000
Fax: (213) 576-1100
Email: marsha.mullin@alston.com

Frank G. Smith (Georgia Bar No. 657550)
Kamran Jivani (Georgia Bar No. 510908)
ALSTON & BIRD LLP
1201 West Peachtree Street
Atlanta, GA 30309
Phone: (404) 881-7000
Fax: (404) 881-7777
Email: frank.smith@alston.com
Email: kamran.jivani@alston.com

Deron R. Dacus (Texas Bar No. 00790553)
RAMEY & FLOCK, P.C.
100 East Ferguson, Suite 500
Tyler, TX 75702
Phone: (903) 597-3301
Fax: (903) 597-2413

Email: ddacus@rameyflock.com

Counsel for DEFENDANT DELL INC.

/s/ John Feldhaus (with permission)
John Feldhaus
Pavan Agarwal
FOLEY & LARDNER LLP
3000 K. Street, NW, Suite 500
Washington, DC 20007
PH: (202) 672-5300
Fax: (202) 672-5399
Email: jfeldhaus@foley.com
Email: pagarwal@foley.com

Guy N. Harrison
Attorney at Law
217 N. Center
Longview, TX 75606
PH: (903) 758-7361
Fax: (903) 753-9557
Email: guy@gnhlaw.com

Counsel for TOSHIBA CORPORATION AND TOSHIBA AMERICA INFORMATION SYSTEMS, INC.

/s/ Vision Winter (with permission)
Ryan K. Yagura (Bar No. 24075933)
Vision Winter (*Pro Hac Vice*)
Eric Chan (*Pro Hac Vice*)
O'MELVENY & MYERS LLP
400 South Hope Street
Los Angeles, California 90071-2899
Telephone: (213) 430-6000
Facsimile: (213) 430-6407

Attorneys for BELKIN INTERNATIONAL, INC.

Certificate of Service

The undersigned certifies that all counsel of record who are deemed to have consented to electronic service are being served with a copy of this document via the Court's CM/ECD system per Local Rule CV-5(a)(3) on June 1, 2012. Any other counsel will be served via U.S. mail.

/s/ Adaline J. Hilgard
Adaline J. Hilgard